DEPARTMENT of ENVIRONMENTAL SERVICES Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: OTTER LAKE	Lake Area (ha):	24.77
Town: GREENFIELD	Maximum depth (m):	4.6
County: Hillsborough	Mean depth (m):	2.8
River Basin: Merrimack	Volume (m^3) : 70	4000
Latitude: 42°57'36" N	Relative depth:	0.8
Longitude: 71°53'53" W		1.64
Elevation (ft): 803	Areal water load (m/yr): 1	4.08
Shore length (m): 2900	``	5.00
Watershed area (ha): 725.2		0.51
<pre>% watershed ponded: 1.8</pre>	Lake type: nat	ural

	The state of the s
9 February 1999	2 July 1998
NO WINTER PLANKTON	CHRYSOSPHAERELLA 50%
ANALYZED	SYNEDRA 20%
	DINOBRYON 10%
	3.84
	KERATELLA 35%
	NAUPLIUS LARVA 18%
	226
	121
	357
	Scat/Common
	2.7
12.0	2.0
	NO WINTER PLANKTON ANALYZED

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 2.6
Hypolimnion volume (m³): 52400
Anoxic volume (m³): None

CHEMICAL:			OTTER LAK		
	9 Febru	lary 1999	2 J	uly 1998	
DEPTH (m)	1.0	2.0	1.0		3.0
pH (units)	6.4	6.4	6.6		6.4
A.N.C. (Alkalinity)	6.9	8.2	6.0		6.0
NITRATE NITROGEN	0.25	0.09	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.30	0.30	0.30		0.30
TOTAL PHOSPHORUS	0.006	0.006	0.009		0.012
CONDUCTIVITY (µmhos/cm)	107.6	119.5	86.8		88.4
APPARENT COLOR (cpu)	16	17	24	*******	32
MAGNESIUM	11.00		0.79		
CALCIUM			4.1		
SODIUM			11.0		
POTASSIUM			0.69		
CHLORIDE	25	28	18		18
SULFATE	4	4	3		3
TN : TP	92	65	33		25
CALCITE SATURATION INDEX			3.3		31.31

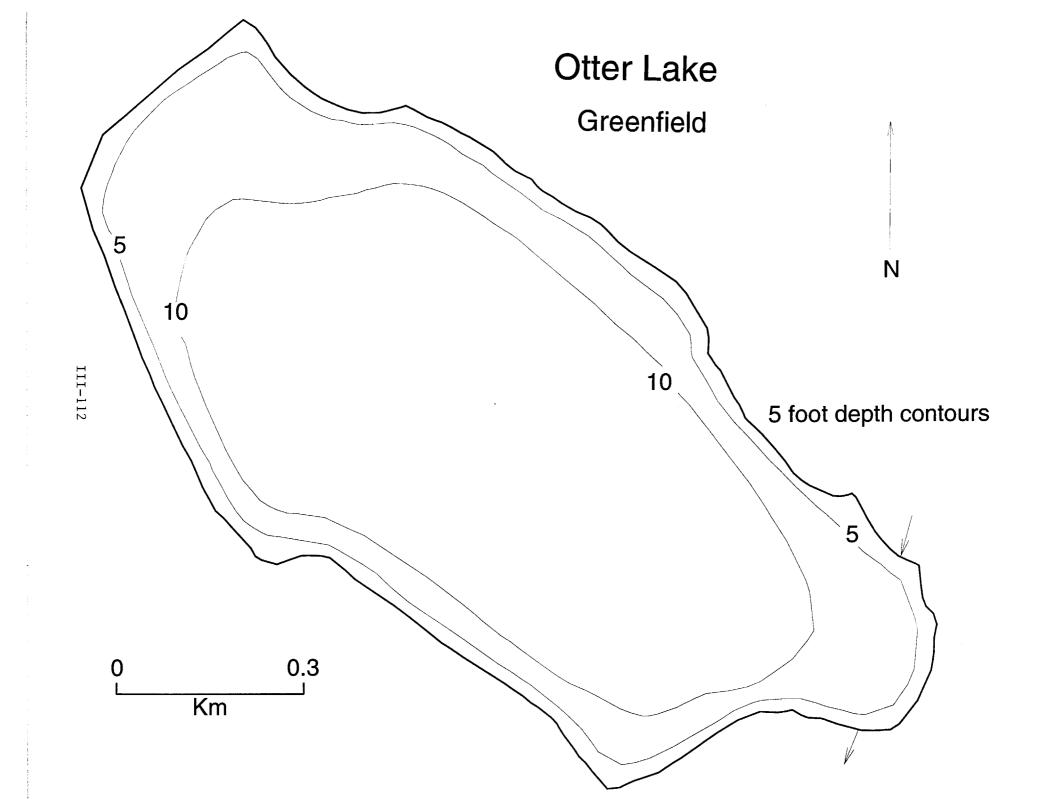
All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1998

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
1	3	2	0	6	Oligo.

COMMENTS:

- 1. Trolling speed only.
- 2. Otter Lake was previously surveyed and classified in 1980. There was no change in trophic class and little change in trophic quality between the two dates although phosphorus levels were much less in 1998 (the 1980 values of 0.033 and 0.053 mg/L are unexplainably high given the oligotrophic nature of the lake).
- 3. The lake has participated in VLAP (volunteer monitoring program) since 1996 with relatively stable but a hint of worsening trends in trophic quality over that short time period. Additional years of monitoring are needed to discern trends.
- 4. Conductivity, sodium and chloride levels suggest some road salt runoff but not excessive.



FIELD DATA SHEET

LAKE: OTTER LAKE

DATE: 07/02/1998

TOWN: GREENFIELD

WEATHER: PARTLY CLOUDY

DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
0.1	21.9	8.4	94 %
1.0	21.9	8.4	94 %
2.0	21.8	8.4	94 %
3.0	19.0	3.2	35 %
4.0	18.2	2.0	21 %
		- ALL CARREST CONTRACTOR CONTRACT	

SECCHI DISK (m): 2.7

COMMENTS:

BOTTOM DEPTH (m):

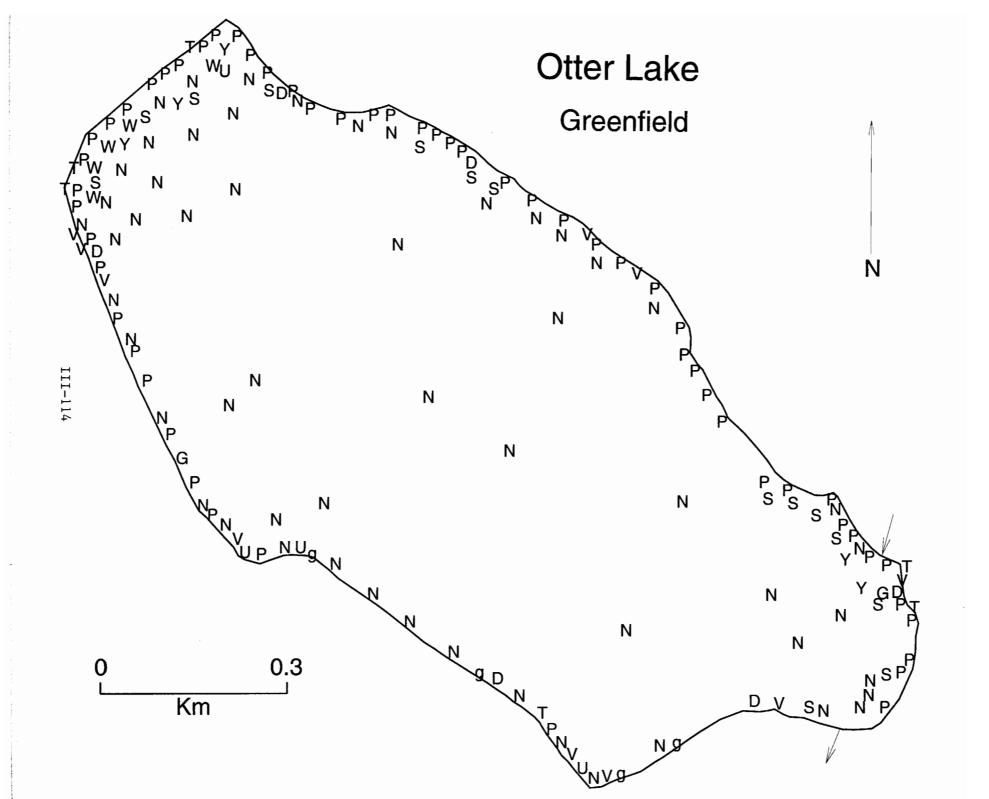
4.5

1220

TIME:

There was less than a 4°C temperature difference between the top and bottom but a weak thermocline was present. A strong wind would likely destratify the pond.

*Dissolved oxygen values are in mg/L



AQUATIC PLANT SURVEY

LAK	E: OTTER LAKE	TOWN: GREENFIELD	DATE: 07/02/1998
Key	PLANT	ABUNDANCE	
Key	GENERIC	COMMON	ABONDANCE
N	Nymphaea	White water lily	Scattered
g	Myrica gale	Sweet gale	Scattered
V	Vaccinium corymbosum	High-bush blueberry	Scattered
U	Utricularia	Bladderwort	Sparse
P	Pontederia cordata	Pickerelweed	Scattered
Т	Typha	Cattail	Sparse
G	Gramineae	Grass family	Sparse
W	Potamogeton	Pondweed	Sparse
s	Sparganium	Bur reed	Sparse
Y	Nuphar	Yellow water lily	Sparse
D	Decodon verticillatus	Swamp loosestrife	Sparse
L	Lemnaceae	Duckweed family	Sparse
	:		
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	<u> </u>	L	

OVERALL ABUNDANCE: Scat/Common

GENERAL OBSERVATIONS:

- 1. Plants were scattered along most of the shoreline and locally common at the northwest and southeast ends.
- 2. Beaches were present at the southeast end.